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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,728	04/07/2005	Alexander Mark	121935	9945

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EXAMINER
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LEY, FRANCISCO M

ART UNIT	PAPER NUMBER
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3746

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09/10/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/516,728

Applicant(s)

MARK, ALEXANDER

Examiner

Francisco M. Ley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 December 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/16/2005</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "*multiplicity of displacers guided in a displacer volume*" as recited in claim 1 must be shown and clearly identified or the feature(s) canceled from the claim(s). No new matter should be entered.
2. Dead space 40 of Figure 3 does not appear to be associated with blind bore 23, as is disclosed in the specification.
3. Also, reference number 16 is pointing to two different features in Figures 3 and 4.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

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the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

4. The disclosure is objected to because of the following informalities:

- a. Page 6, Line 28: "hat" should recite, "has".
- b. Page 7, Line 5, "Figur 3" should recite, "Figure 3".
- c. Page 8, Line 34: "shifitng" should recite, "shifting".

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites, "*characterized by a **dead space** through the intermediary of which the displacer volume is increased in a commutation phase.*" It is unclear from the claim what the specific structure is that constitutes a "dead space". Therefore, the scope of the claims cannot be determined based on this term. It is noted that the specification on page 8, lines 3-5 recites, "In the represented practical example, the dead space 44 is essentially formed by a centrally arranged, axially extending cavity..." and on Page 8, lines 7-8, "The two commutation chambers 40 and 42 are formed by

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radially offset bore sections...” However, the specification is merely a “represented practical example”, and because the term “dead space” is not limited by structure in the claims, the scope of claim 1 cannot be determined.

Claims 2-9 are dependent from claim 1 and are rejected for at least the same reasons.

7. Claim 2 is further rejected for reciting the limitation “said control means” in reference to claim 1. Claim 1 only recites a “commutation means” and makes no mention of a “control means”. There is insufficient antecedent basis for this limitation in claim 2.

8. Claim 4 recites the limitation “*a control disc in which **said control kidneys and through bores** of said dead spaces are formed.*” There is insufficient antecedent basis for the limitation “*through bores*” in this claim as no through bores are mentioned in claims 1 or 2.

9. Claim 8 recites, “*wherein one of said dead spaces **is formed to be substantially axial**, and said two other dead spaces are formed to be substantially offset with respect to the axis of **said control member**.*” There is insufficient antecedent basis for the limitation “*control member*” in this claim, as no control member is recited in claim 1. Also, as claim 8 is written, it is unclear whether the first dead space is merely “substantially axial”, or axial with respect to the control member. For the purposes of this action, the claim will be treated as meaning that the first dead space is axial with respect to the axis of the control member.

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1-3, 6, 7, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Achten (U.S. Patent 6,116,138).

Claim 1: Achten discloses a hydraulic transformer, comprising a multiplicity of displacers 27 guided in a displacer volume 25, and commutation means 20 for shifting pressure medium supply and discharge to and from the displacers, wherein said commutation means 20 includes at least two control recesses 19 connected with a pressure port, consumer port, or tank port 16 (Column 4, Lines 19-20) the relative positions of which are variable in relation to the dead-center positions of the displacers as shown in Figures 4-6, characterized by a dead space 23 through the intermediary of which the displacer volume is increased in a commutation phase.

Claim 2: Achten shows in Figure 2 that commutation means 20 includes three control recesses 19 distributed on the periphery, and dead spaces 23 open into respective ranges 32 between the control recesses as shown at 22 in Figure 10.

Claim 3: Achten shows in Figure 2 that control recesses 19 are control kidneys and that dead spaces 23 open into respective kidney separation webs 32 between two adjacent control kidneys as seen by reference characters A, D, and G of Figure 7.

Claims 6 and 7: Achten discloses that when a rib 32 covers a dead space 23, the total volume of "dead space" equals the displacer volume 24 plus the dead space volume 23, which is less than five times the displacement volume.

Claim 9: Achten discloses in Figure 11 that the hydraulic transformer may include displacers as pistons of an axial piston bent-axis unit.

### ***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 4, 5, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Achten (U.S. Patent 6,116,138) in view of Bosch (British Patent GB1,324,756).

Claim 4: Achten discloses that control means 20 is a control disc in which control kidneys 19 are formed, but does not disclose through bores in the control disc where the dead spaces are formed. However, Bosch discloses a control disc 21 in which dead spaces are formed by through bores 30 and 31.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the control disc disclosed by Achten to include dead spaces associated with through bores as disclosed by Bosch. Such an arrangement would allow part of the *"energy stored in the dead volume to be gained for precompression of the cylinders which change over to the high pressure side, and an*

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*improved suction characteristic and noise reduction of the machine to be obtained"*

(Bosch Page 2, Lines 5-11).

Claim 8: Achten discloses that dead spaces 23 are substantially offset with respect to the axis of control member 20, but does not disclose a dead space that is axial with respect to the control member. However, Bosch discloses a dead space formed by an annular closed duct 37 that is axial with respect to plate 21.

It would have been obvious to one of ordinary skill in the art to modify Achten to include a dead space in axial alignment with the control plate as disclosed by Bosch. For the purposes of improved suction and noise reduction Bosch states, *"it is particularly advantageous if the duct is or includes an annular groove formed in the inner peripheral wall of the valve plate and closed in a sealing-tight member so as to produce an annular duct"* (Page 2, Lines 12-17).

Claim 5: Achten discloses that the dead spaces 23 may extend through a lower sealing plate 21 and an upper sealing plate 18 fixed in the housing 11 and having a key peg 17 to ensure that each of the three openings in the stationary sealing plate 18 are positioned for a connection to pressure port 16 (Column 4, Lines 16-20).

### ***Conclusion***

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.



Japanese Patent JP04041980 discloses a variable displacement type axial piston machine that provides an adjustable kidney separation web for reducing vibration and noise.

U.S. Patent 3,183,847 discloses a variable displacement pump having dead spaces formed by through bores.


U.S. Patent 4,037,521 discloses an axial piston machine having a dead space for trapping a quantity of air and reducing noise radiation.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Francisco M. Ley whose telephone number is (571) 270-1299. The examiner can normally be reached on Monday-Friday, 8:30am-6:00pm, Alt Fridays, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Stashick can be reached at (571) 272-4561. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866) 217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call (800) 786-9199 (IN USA OR CANADA) or (571) 272-1000.

/FML/  
August 28, 2007

  
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